

Note on an Electric Heater for use in a plate-holder on damp nights.

(Communicated by the Astronomer Royal.)

This electric heater was devised by Mr. Davidson and Mr. Melotte in 1908 November for the purpose of keeping the photographic plate dry during a prolonged exposure with the 30-inch reflector.

Whilst Comet *c* 1908 was under observation it was noticed that when the photographic plate was taken from the telescope at the end of an exposure it seemed to be quite damp. The air at the time was very humid, and the gelatine of the plate (which is quite exposed at the mouth of the tube of the 30-inch reflector) had evidently absorbed a good deal of moisture from the air. The effect on the plate was an appreciable diminution in sensitiveness, shown by the fading of the star-trails as the exposure proceeded.

The electric heater was designed to remove this difficulty, as it is evident that on damp nights a limit was set to the effective exposure.

It consists of a grid of resistance wire stretched on a vulcanite frame nearly in contact with an aluminium plate, and placed in the back of the dark slide, the metal plate in contact with the sensitive plate. In the case of the plate-holder for 16×16 cm. plates, about $7\frac{1}{2}$ yards of No. 38 "Platinoid" wire is used for the grid, giving a resistance of about 130 ohms. The current used is about 16 ampères obtained from the lighting circuit at 100 volts, a 5 c.p. lamp being introduced in series as a resistance. This amount of current is sufficient to make the plate just perceptibly warm to the touch, and experience has shown this to be enough to keep the plate dry, while at the same time the definition does not suffer from the heated air, as might happen if the plate were made unduly hot.

Royal Observatory, Greenwich :
1909 June 8.

Report on the Measurement of an Arc of Meridian in Uganda.
By Col. C. F. Close, R.E.

[At their meeting on 1907 April 12 the Council voted the sum of £50 as a small contribution from the funds of the Society towards the cost of measuring a section of the great African arc of meridian on the Uganda-Congo boundary. The Council have now much pleasure in publishing to the Society the annexed short preliminary report from Col. C. F. Close, announcing the successful completion of the work.]

1. The measurement was commenced in March 1908 and completed in February 1909. The arc extends from $1^{\circ} 10' N.$ to $1^{\circ} 10' S.$, i.e. the length is $2\frac{1}{2}$ degrees, or about 165 miles.

2. One base, length 11 miles, was measured in the northern portion, in the Semliki Valley. The chain consists of 1 complex figure, 3 quadrilaterals, and 1 tetragon.

3. All the stations have been marked in a permanent manner, and the Government of Uganda has been notified of their positions.

4. The probable error of an observed angle is about $0''4$.

5. Three azimuths and 14 latitudes were observed.

6. Magnetic observations for declination and dip were made at twenty stations.

7. The work was organised by Major Bright, C.M.G., and carried out by a British party consisting of Captain Jack, R.E., Mr. McCaw, Mr. C. Chevallier, L.-Cpl. Jones, R.E., L.-Cpl. Page, R.E.; and for a portion of the time, Captain S. Iredell, 4th Battalion, King's African Rifles, who also commanded the escort.

The Belgian party consisted of Captain Wangermée and Dr. M. Dehalu.

1909 June 1.